Questions and Answers

Q: Is There A *Magic* Anti-Radiation Protection Pill?
A: Sorry, but there is no *magic pill* or medicine that will protect you from all radiation sources. In fact, as already stated here:

> *"There is no medicine that will effectively prevent nuclear radiations from damaging the human body cells that they strike."*

Potassium Iodide (and Potassium Iodate, KIO3) will provide a very high level of thyroid protection, taken in time, for the specific radioisotopes of iodine, which is expected by many to cause the majority of health concerns downwind from a nuclear emergency. However, there are numerous others, and very dangerous, radioactive noble gases and/or radioactive fallouts that can be associated with nuclear emergencies. You can still inhale, ingest, or be radiated externally from any number of dangerous non-radioiodine sources.

If you are ever directed to evacuate in a nuclear emergency, do so immediately, regardless of whether you have taken Potassium Iodide (KI) or KIO3, or not.

Q: What Are The Facts To Know About Radioactive Iodine:
A: #1 – Radioactive iodine (predominately Iodine-131) is a major radioisotope constituent in nuclear power plants.
#2 – There are 103 currently active commercial nuclear reactors and 39 operating nonpower reactors in the United States. (434 worldwide as of 1998.) Additionally, there are numerous other nuclear processing and storage facilities worldwide with the potential for accidents, too.
#3 – Radioactive iodine (predominantly Iodine-131) is also a major constituent of detonated nuclear weapons.
#4 – Radioactive iodine can travel hundreds of miles on the winds.
#5 – Radioactive iodine (radioiodine) persists in the environment for a month or more.
#6 – Most importantly, ingested or inhaled radioactive iodine (radioiodine) persists in the body and concentrates in the thyroid. (Excess iodine in the blood, either radioiodine or stable iodine, is quickly eliminated from the body, but only after the thyroid has become saturated with one or the other type of iodine.) Even very small amounts of radioactive iodine, because it is retained in the small space of the thyroid, eventually will give such a large radiation dose to thyroid cells that abnormalities are likely to result. These would include loss of thyroid function, nodules in the thyroid, or thyroid cancer. The most likely to see the worst effects, in later life, are the youngest children.

Q: Is There Any Preventive Action That Can Be Taken?
A: Evacuation is the most effective, protective action to circumvent damage due to nuclear exposure. Evacuation would prevent exposure of radioiodine. Evacuation, when feasible, is the most effective and desirable way of reducing thyroid exposure.

If evacuation is not feasible then Potassium Iodide (KI) is the most effective prophylactic measure that can be taken if it is ingested immediately prior to, during, or immediately after exposure to radioiodines. KI's effectiveness is significantly lessened if it is administered more than a few hours before or after exposure. KI can reduce the uptake of radioiodines by up to 90 percent if administered within one hour of exposure, and can provide approximately 50 percent protection if administered within five hours of exposure. If administered twelve to fifteen hours after being exposed to radioiodines, it is not likely to provide much protection. Taking either Potassium Iodide (KI) or Potassium Iodate (KIO3) before exposure will saturate (fill up) a persons thyroid gland with safe stable iodine to where there is no room for later uptake of radioactive iodine. Once the thyroid is saturated, then any additional iodine (radioactive or stable) that is later inhaled or ingested is quickly eliminated via the kidneys.

It is important to note that KI provides protection only to the thyroid gland and only against radioiodines in the body. "There is no medicine that will effectively prevent nuclear radiations from

damaging the human body cells that they strike. KI does not protect the thyroid or any other parts of the body from other radionuclides that could be released during a nuclear incident, nor does it protect against external exposure or to other radionuclides in the plume or deposited on the ground.

Q: What Is Potassium Iodide (KI)?
A: Potassium Iodide (chemical name '**KI**') is much more familiar to most than they might first expect. It is the ingredient added to your table salt to make it *iodized* salt. Potassium Iodide (KI) is approximately 76.5% iodine. For purposes of radiation protection the Nuclear Regulatory Commission (NRC) states in COMSECY-98-016-FEDERAL REGISTER NOTICE ON POTASSIUM IODIDE:

> *"In 1978, the U.S. Food and Drug Administration found KI "safe and effective" for use in radiological emergencies and approved its over-the-counter sale."*

Q: How Do Potassium Iodide (KI) Pills Provide Anti-Radiation Protection?
A: Going back to June 23, 1966, the New England Journal of Medicine. Vol. 274 on Page 1442 states:

> *"The thyroid gland is especially vulnerable to atomic injury since radioactive isotopes of iodine are a major component of fallout."*

Cresson H. Kearney, the author of Nuclear War Survival Skills. Original Edition Published September, 1979, by Oak Ridge National Laboratory, a Facility of the U.S. Department of Energy (Updated and Expanded 1987 Edition) states on page 111:

> *"There is no medicine that will effectively prevent nuclear radiations from damaging the human body cells that they strike.*
> *However, a salt of the elements potassium and iodine, taken orally even in very small quantities ½ hour to 1 day before radioactive iodines are swallowed or inhaled, prevents about 99% of the damage to the thyroid gland that otherwise would result. The thyroid gland readily absorbs both non-radioactive and radioactive iodine, and normally it retains much of this element in either or both forms.*
> *When ordinary, non-radioactive iodine is made available in the blood for absorption by the thyroid gland before any radioactive iodine is made available, the gland will absorb and retain so much that it becomes saturated with non-radioactive iodine. When saturated, the thyroid can absorb only about 1% as much additional iodine, including radioactive forms that later may become available in the blood; then it is said to be blocked. (Excess iodine in the blood is rapidly eliminated by the action of the kidneys.)"*

The Nuclear Regulatory Commission (NRC) stated July 1, 1998 in USE OF POTASSIUM IODIDE IN EMERGENCY RESPONSE:

> *"Potassium iodide, if taken in time, blocks the thyroid gland's uptake of radioactive iodine and thus could help prevent thyroid cancers and other diseases that might otherwise be caused by exposure to airborne radioactive iodine that could be dispersed in a nuclear accident.*

Federal Register. Vol.. 43 Friday, December 5, 1978, states in Potassium Iodide as a Thyroid Blocking Agent in a Radiation Emergency:

> *"Almost complete (greater than 90%) blocking of peak radioactive iodine uptake by the thyroid gland can be obtained by the oral administration of ...iodide..."*

National Council on Radiation Protection and Measurements. NCRP Report NO. 55. Protection of the Thyroid Gland in the Event of Releases of Radioiodine. August, 1979, Page 32:

> *"A major protective action to be considered after a serious accident at a nuclear power facility involving the release of radioiodine is the use of stable iodide as a thyroid blocking agent to prevent thyroid uptake of radioiodines."*

The recently updated (1999) World Health Organization (WHO) Guidelines for Iodine Prophylaxis following Nuclear Accidents states:

> *"Stable iodine administered before, or promptly after, intake of radioactive iodine can block or reduce the accumulation of radioactive iodine in the thyroid."*

Q: How can individual members of the public obtain Potassium Iodide (KI)?
A: Individuals who wish to purchase Potassium Iodide (KI) may do so by contacting their local pharmacist.